



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,100	10/21/2005	Yoshihito Asao	Q90098	6595
23373	7590	12/18/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			CUEVAS, PEDRO J	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 12/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/554,100	ASAO ET AL.	
	Examiner	Art Unit	
	Pedro J. Cuevas	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/21/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 7-¹⁷₁₈ are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,920,162 A to Hanson et al. in view of U.S. Patent Application Publication No. 2003/0030409 A1 to Kusumoto et al.

Hanson et al. disclose the construction of a position control using variable exciter feed through comprising:

a motor generator (16, 105) having a stator with an armature winding (36a-36c) wound thereon, and a rotor with a field winding (34) wound thereon;

an inverter unit (114) that sends and receives electric power to and from the armature winding;

a field circuit (40) that controls a field current flowing through the field winding;

and

a control circuit (54) that controls the inverter unit and the field circuit;

wherein:

an engine (21) is started and power generation is performed while a vehicle is running;

in the power generation, an inverter mode in a low rotation speed zone for boosting and an alternator mode in a high rotation speed zone for rectifying and outputting a generated voltage without boosting are provided.

However, it fails to disclose:

a field current limit value I_{fm} in electric driving to start the engine is larger than a field current limit value I_{fg} in power generation;

a field current limit value I_{fgi} in the inverter-mode power generation and a field current limit value I_{fga} in the alternator-mode power generation are set differently from each other; and

the larger value is set as the value I_{fg} .

Kusumoto et al. teach the construction of a control apparatus and control method of on-vehicle dynamo-electric machine comprising:

a field current limit value I_{fm} in electric driving to start the engine is larger than a field current limit value I_{fg} in power generation (Figure 2);

a field current limit value I_{fgi} in the inverter-mode power generation and a field current limit value I_{fga} in the alternator-mode power generation are set differently from each other (Figure 3); and

the larger value is set as the value I_{fg} (Figure 5);

for the purpose of achieving a control method of an on-vehicle dynamo-electric machine capable of extracting an output power from the dynamo-electric machine enough to cover a wide rotation range from a low-speed rotation range to a high-speed rotation range.

It would have been obvious to one skilled in the art at the time the invention was made to use the control apparatus and control method disclosed by Kusumoto et al. on the position control disclosed by Hanson et al. for the purpose of achieving a control method of an on-vehicle dynamo-electric machine capable of extracting an output power from the dynamo-electric machine enough to cover a wide rotation range from a low-speed rotation range to a high-speed rotation range.

It would have also been an obvious matter of design choice to use a rotor of claw-pole shape, since the applicant has not disclosed that the shape of the rotor solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any permanent magnet rotor having multiple windings.

3. With regards to claims 8-10, 11-13, and 15-16, Kusumoto et al. discloses:

the field current limit value I_{fga} in the alternator-mode power generation set to be equal to or larger than the field current limit value I_{fgi} in the inverter-mode power generation, and the field current limit value I_{fga} in the alternator-mode power generation is set as the field current limit value I_{fg} in the power generation (Figure 2);

the field current limit value I_{fgi} in the inverter-mode power generation is set to be equal to or larger than the field current limit value I_{fga} in the alternator-mode power generation, and the field current limit value I_{fgi} in the inverter-mode power generation is set as the field current limit value I_{fg} in the power generation (Figure 3);

the field current limit value at the time of maximum power generation in the inverter-mode power generation in a low rotation speed zone for boosting is expressed as I_{fgi} , and the value I_{fgi} is a function of rotation speed, and a speed zone is provided such

Art Unit: 2834

that a field current I_{fgip} in the case where the quantity of power generation at each rotation speed is smaller than the maximum quantity of power generation at the rotation speed is smaller than I_{fgi} (Figure 4); and

the low rotation speed zone for boosting includes a zone where boosting is not carried out at the time of low load, and a field current in this case is equal to or larger than the field current limit value I_{fga} in the alternator-mode power generation (Figure 5).

4. With regards to claims 11, 14, and 17, Hanson et al. discloses the rotor having a field-supplementing permanent magnet (22).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pedro J. Cuevas whose telephone number is (571) 272-2021. The examiner can normally be reached on M-F from 8:30 - 6:00.

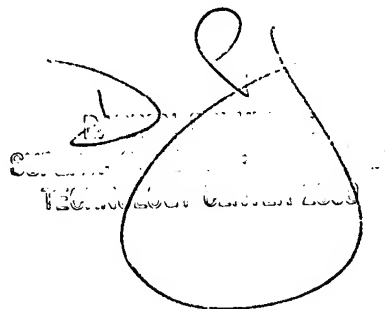
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2834

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Pedro J. Cuevas
December 9, 2006



Control No. 10/554,100
Date of Filing: 12/09/2006